

## **ADDENDUM NO. 2**

DATE: **March 30, 2016**  
OWNER: **City of Stockbridge**  
PROJECT: **Willow Springs Pump Station Rehabilitation**  
C & S PROJECT NO.: **S9100.004**  
ENGINEER: **Martin C. Boyd, P.E.**  
**CARTER & SLOOPE, INC.**  
**P.O. Box 534**  
**Watkinsville, Georgia 30677**  
**Telephone: 706-769-4119 Fax: 706-769-4546**  
**Email: mboyd@cartersloope.com**

**BID DATE: April 8, 2016**

**BID OPENING: 2:00 PM Local Time**

TO ALL BIDDERS:

ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY INSERTING ITS NUMBER IN YOUR BID FORM – SECTION 00400. FAILURE TO DO SO MAY SUBJECT BONA FIDE BIDDERS TO DISQUALIFICATION. THIS ADDENDUM FORMS A PART OF THE BIDDING DOCUMENTS WHICH ARE HEREBY MODIFIED IN THE FOLLOWING RESPECTS:

**I. CONTRACT DOCUMENTS AND SPECIFICATIONS**

**A. Section 00400 – Bid Form**

1. Replace the Bid Form with the attached revised Bid Form.

**B. Section 11310 – Submersible Pumping Systems**

1. Replace this section with the attached revised section.

Clarification: The pump manufacture has updated their specifications and those updates are now reflected in this revised section. Also, it was not our intent for the pump manufacturer to supply a jib crane so that portion of the specification has been removed from this section and moved to Section 11340.

**C. Section 11340 – Jib Cranes**

1. Insert this section into the specifications.

## II. CONTRACT DRAWINGS

- A. Replace Sheets 3, 5, 9, E-3, E-4 and E-5 with the enclosed revised sheets.
- B. Add the following note to Sheet 6:

Note: The Contractor shall furnish and install all stone, couplings, fittings, and appurtenances necessary to replace the manholes.

## III. CLARIFICATIONS

- A. In accordance with the Section 00700 – General Conditions, the Contractor is responsible for providing all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; however, the Contractor may use the City of Stockbridge’s Public Works Department yard for laydown and storage of materials and equipment since limited land is available at both the Willow Springs and Glenn Addy Pump Station Sites. The Contractor is responsible for all safety and security and the Owner assumes no liability for storage of materials even if the City’s Public Works Department yard is used by the Contractor. The Contractor may store equipment at their own facilities during construction and the Owner will pay for equipment stored offsite as long as it is stored properly in accordance to Section 01605 and is available for observation by the Engineer. The Owner will not pay any additional costs for moving or transporting materials, equipment, etc. that is stored at their Public Works Department or offsite to the jobsite since that will be the responsibility of the Contractor. The Owner will not responsible for accepting delivery or off-loading any materials or equipment delivered to their Public Works Department yard.
- B. As shown on Sheet E-2, Note 1, the Contractor will be responsible for ordering the new transformer and coordinating its delivery and installation with his work at the Willow Springs Pump Station site.

END OF ADDENDUM NO. 2

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**BID FORM**

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**BID FORM**

**ARTICLE 1 – BID RECIPIENT**

1.01 Project Identification:

**WILLOW SPRINGS PUMP STATION REHABILITATION**

Carter & Sloope Project No. : S9100.004

1.02 This Bid is submitted to:

**MR. KEVIN J. WALTER, P.E.**  
**CITY OF STOCKBRIDGE**  
**4640 NORTH HENRY BLVD.**  
**STOCKBRIDGE, GA 30281**

1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS**

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

2.02 The undersigned further agrees that in case of failure on his part to execute the said contract and the Bond within fifteen (15) consecutive calendar days after written notice being given of the award of the contract, the check or bid bond accompanying this bid, and the monies payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure, otherwise, the check or bid bond accompanying this proposal shall be returned to the undersigned

**ARTICLE 3 – BIDDER’S REPRESENTATIONS**

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.                      Addendum Date

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 
- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that have been identified in ~~SC 4.02 as containing reliable “technical data,”~~ *Part 6 of the Supplemental Conditions* and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in ~~SC 4.06 as containing reliable “technical data”~~ *Part 6 of the Supplemental Conditions*.
- E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder’s safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- J. *Bidder will submit written evidence of its Authority to do business in the State where the Project is located no later than the date of its execution of the Agreement.*

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**ARTICLE 4 – BIDDER’S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
  - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
  - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

**ARTICLE 5 – BASIS OF BID**

5.01 The Contractor is directed to Section 01025 – Measurement & Payment for methods and limits for payments to the Contractor for the pay items listed below:

**ITEM NO. DESCRIPTION**

- 1. Pump Station Rehabilitation Lump Sum

Bidder agrees to furnish all materials and equipment and to perform all labor necessary to complete the pump station rehabilitation improvements shown on the Drawings and as specified herein, including, but not limited to, mobilization/demobilization, bonds, insurance, demolition, temporary bypass connection, temporary bypass pumping, wet well rehabilitation, valve vault, piping, valves, yard hydrant, fencing, site work, concrete slab, soil erosion and sediment control and grassing at the pump station site, construction exit, asphalt paving of existing gravel drive, electrical, SCADA system, painting and other appurtenances

necessary to provide a complete and working installation **except for furnishing** the Major Mechanical Equipment scheduled in Item 2. The cost of furnishing the items listed in Item 2 shall be **excluded** from lump sum total. The lump sum total for Item 1 shall be:

---

Lump Sum in Words

---

Dollars and Cents

2. Major Mechanical Equipment Schedule

The following schedule **MUST** be completed by the Bidder for all Major Mechanical Equipment as listed. **The price for the Base Bid mechanical equipment shall be used by the Bidder as the basis for determining the Total Base Bid Lump Sum Price for Items 1-4.** Design of this project is based upon the "Base Bid" equipment named in the Schedule. The Contractor must provide a price for all named "Base Bid" and "Accepted Equal" Equipment, if any. Pricing shall be based on quotation provided to the Bidder at the time of the Bid. If no quotation is received from a manufacturer, the Bidder shall enter "No Bid" in the space provided. Evidence must be provided that an attempt was made to solicit quotations from each named manufacture. Failure to enter prices for named suppliers without such evidence shall be grounds for determining the Bid as non-responsive.

**The Contractor may also offer a price for Substitute equipment in the blanks provided; however, it is not necessary that substitutions be offered.** Substitute equipment will be evaluated after the bids are received as defined in the Instruction to Bidders, General Conditions, Supplementary Conditions, and Section 01300 in the Technical Specifications. Full consideration will be given to substitute equipment regardless of whether the cost is greater than or less than the Base Bid item. No requests for substitutions will be accepted after the Bid Opening. Prices given for "Accepted Equal" and "Substitute" equipment will be evaluated after the bids are received. The contract will be awarded on the basis of the lowest qualified base bid including any "Accepted Equal" or "Substitute" Equipment selected by the Owner. NOTE: "Accepted Equal" and "Substitute" pricing shall include any associated cost differences for installation of other work if it differs from the Base Bid equipment and any re-engineering that will be needed for use of "Accepted Equal" or "Substitute" equipment in the provided design.

In summary, the Contractor must write-in on this Bid Form the price for "Base Bid" and "Accepted Equal" equipment for the bid to be considered complete and responsive, unless a vendor does not offer a quote for the equipment in which case the contractor shall enter "No Bid" in the space provided. The contractor is not required to write-in any vendor or price in the "Substitute" blanks; however, substitutes are encouraged and will be evaluated if provided.

The Price provided below shall include all items as provided for in the Manufacturer's (or Manufacturer's Representative's) quotation. **Contractor markup and installation costs shall not be included in below pricing, but shall be included in the Contractor's lump sum price in Item 1 for which the work pertains.** All Bids are subject to evaluation by the Engineer and it is agreed by the Bidder that the following tabulated and submitted data is made a part of the Bid and shall become part of this contract.

- a. Submersible Pumps – Section 11310

Base Bid: Vaughn

\_\_\_\_\_  
Dollar/Cents

\_\_\_\_\_  
Words

- b. Natural Gas Generator – Section 16232

Base Bid: Caterpillar

\_\_\_\_\_  
Dollar/Cents

\_\_\_\_\_  
Words

Accepted Equal: Cummins

\_\_\_\_\_  
Dollars/Cents

\_\_\_\_\_  
Words

Accepted Equal: Kohler

\_\_\_\_\_  
Dollars/Cents

\_\_\_\_\_  
Words

Accepted Equal: MTU Onsite Energy

\_\_\_\_\_  
Dollars/Cents

\_\_\_\_\_  
Words

Substitute: \_\_\_\_\_

\_\_\_\_\_  
Dollars/Cents

\_\_\_\_\_  
Words

c. Jib Cranes – Section 11340

Base Bid: Gorbel

\_\_\_\_\_

Dollar/Cents

\_\_\_\_\_

Words

Accepted Equal: \_\_\_\_\_

\_\_\_\_\_

Dollars/Cents

\_\_\_\_\_

Words

3. Allowance (Section 01020)

a. Supplemental Work Allowance	\$	25,000	Dollars
b. Spare Parts Cash Allowance	\$	5,000	Dollars

<u>Item No.</u>	<u>Est. Qty.</u>	<u>Unit</u>	<u>Description</u>	<u>Unit Price Proposed</u>	<u>Total for Item</u>
4. Force Main & Manhole Replacement (Unit Price)					
A. Rock Excavation & Removal					
1.	20	CY	Rock Excavation/Removal	\$75.00	\$1,500.00
B. Soil Erosion & Sediment Control					
1.	625	LF	Sd1-Ns, Silt Fence – Type Ns	_____	_____
2.	4	EA	Sd2, Inlet Sediment Trap	_____	_____
3.	4	EA	Cd-Fs, Check Dam – Filter Sock	_____	_____
4.	1	EA	Co, Construction Exits	_____	_____
5.	770	LF	Grassing (Temporary & Permanent)	_____	_____
C. Force Main					
1.	990	LF	6” Dia. PVC Force Main	_____	_____
2.	270	LF	Open Cut 12” Dia. Steel Casing, 0.250” W.T. (carrier pipe paid under separate item)	_____	_____

3.	1	EA	Combination Air Release/Vacuum Valve & MH	_____	_____
4.	1	EA	Connect to Manhole	_____	_____
5.	1	EA	Connect to Existing 6" Force Main	_____	_____
<b>D. Manholes</b>					
1.	3	EA	Standard 4' Dia. Manhole Complete Including Base, Cone, Riser, Frame & Cover, and Coating 0.0' – 6.0' Depth	_____	_____
2.	4	VF	Manhole Additional Vertical Feet	_____	_____
<b>E. Removing &amp; Replacing Pavements</b>					
1.	270	LF	Asphalt Roadway Repair/Replacement	_____	_____
2.	20	LF	Sidewalk Repair/Replacement	_____	_____
3.	20	LF	Concrete Curb Repair/Replacement	_____	_____

**TOTAL BASE BID FOR ITEMS 1-4 THE AMOUNT OF:**

\$ \_\_\_\_\_

Dollars & Cents

Price in Words

**5.02 Additions/Deductions**

The Owner reserves the right to make certain changes in the work for the purpose of making an award. Each Bidder must fill in the amount as required below.

1. For deleting all Work required for furnishing and install the jib crane at the Willow Springs Pump Station site; including but not limited to foundation, crane, hoist, electrical and other appurtenances deduct the amount of:

\$ \_\_\_\_\_ Deduct

2. For furnishing one (1) series 5PT30 Davit Crane with a 3,000 lbs. load capacity with ratchet style screw-jack (Model SPT30JX-M2X) for an adjustable boom and pedestal

mounted to concrete wet well. Furnish with a 2W40-BM-K worm gear hand winch with totally enclosed gearing and internal automatic load brake for positive load control. Also furnish with a heavy-duty right angle drill kit for use with 2W40 worm gear hand winches complete with 1 1/8" hex socket adapter, 120V single phase, 300 RPM, 11.5 amps. A stainless steel 3/8" diameter 7x19 air craft cable assembly, 60 ft. long shall be provided with 316 SS swivel hook with safety latch shall be furnished and installed and the entire system load tested. Add the amount of:

\$ \_\_\_\_\_ Add

3. For installing 8" thick 4,000 psi concrete drive per the detail on Sheet 9 in lieu of asphalt paving, Add or Deduct (circle one) the amount of:

\$ \_\_\_\_\_ Add or Deduct (circle one)

### ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete within **180** calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within **180** calendar days after the date when the Contract Times commence to run.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

### ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of 10% of the Total Bid Price;
  - B. List of Proposed Subcontractors;
  - C. List of Proposed Suppliers;
  - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
  - E. License No. of Contractor performing the work or evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
  - F. Noncollusion Affidavit of prime Bidder (*Section 00481*)
  - G. Contractor Affidavit and Agreement (*Section 00483*)
  - H. Subcontractor Affidavit and Agreement (*Section 00484*)

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I. Save Affidavit (*Section 00485*)

**ARTICLE 8 – DEFINED TERMS**

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**ARTICLE 9 – BID COMMUNICATION**

9.01 COMMUNICATION CONCERNING THIS BID SHALL BE ADDRESS TO:

MR. MARTIN C. BOYD, P.E.  
CARTER & SLOOPE, INC.  
1031 STONEBRIDGE PARKWAY  
WATKINSVILLE, GEORGIA 30677  
PHONE: 706-769-4119

**ARTICLE 10 – BID SUBMITTAL**

10.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_

(Individual's signature)

Doing business as: \_\_\_\_\_

A Partnership

Partnership Name: \_\_\_\_\_

By: \_\_\_\_\_

(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

A Corporation

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

By: \_\_\_\_\_  
(Signature -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_  
(CORPORATE SEAL)

Attest \_\_\_\_\_

Date of Qualification to do business in Georgia  
is \_\_\_\_/\_\_\_\_/\_\_\_\_.

A Joint Venture

Name of Joint Venture: \_\_\_\_\_

First Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Second Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No. \_\_\_\_\_

E-mail \_\_\_\_\_

SUBMITTED on \_\_\_\_\_, 20\_\_\_\_.

State Contractor License No. *of Contractor performing the work.* \_\_\_\_\_

END OF SECTION

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**SECTION 11310**  
**SUBMERSIBLE PUMPING SYSTEMS**  
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**SECTION 11310  
SUBMERSIBLE PUMPING SYSTEMS**

**PART 1. GENERAL**

**1.1 SCOPE**

- A. The Contractor shall furnish and install at the locations shown on the Drawings, as specified or as directed, the submersible chopper pumps complete with motors, permanent discharge elbows, upper guide bars brackets, upper and lower guide bar brackets, power cable, lifting chain, pump controls, SCADA, telemetry, level sensor, anchor bolts, spare parts and other accessories including all necessary labor, supervision, materials, tools, and appurtenances.
- B. This section shall include the complete installation and responsibility for the proper operation of the various components of this section. It shall also include painting, field-testing and additional services of the equipment supplier.
- C. It is the intent of this Contract that the installation shall be complete in all respects and ready for use and operation. The Contractor will be responsible for all incidental details and for any special construction necessary to complete the work in an acceptable manner.

**1.2 RELATED WORK**

Other work required to replace the force main as specified in the following sections of these specifications:

SECTION NO.	TITLE
02530	Sanitary Sewer Collection System
03300	Concrete
03411	Precast Concrete Vaults
03600	Grout
11000	General Requirements for Equipment
11340	Jib Crane

**1.3 QUALITY ASSURANCE**

- A. Unit Responsibility – The Contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the representative of the Engineer/Owner of any discrepancy before performing the work.
- B. The Contractor shall assign unit responsibility to the pump manufacturer for the equipment specified in this section in order to enhance compatibility, ease of construction, and efficient maintenance of the components of each pumping system. The pump manufacturer shall coordinate the controls so that a complete and

operable system is achieved.

- C. Manufacturer – Material and equipment shall be standard products of a manufacturer who has made them for a minimum of five years and who provides published data and performance curves.
- D. Shipment and Storage – The equipment shall be protected during shipment and storage as specified in Section 01605.
- E. Environmental Conditions – The equipment to be provided under this section shall be suitable for continuous submerged operation exposed to a corrosive atmosphere. The temperature of the wastewater may range between 55 and 85 degrees Fahrenheit.

#### 1.4 SUBMITTALS

The following materials shall be submitted in accordance with the requirements of Section 01300.

- A. Manufacturer's Data – Bulletins.
- B. Performance Data – Predicted performance curves developed for the specific application. Performance curves shall plot velocity, capacity, head, horsepower, efficiency, and NPSH requirements over the manufacturer's recommended range of operation.
- C. Motor submittal data including motor horsepower, RPM, frame size, weight and description bulletin of the motor to be furnished. Include motor manufacturer's certified dimension sheet that lists motor features and include typical motor data sheet.
- D. Shop drawings including dimensions and cross sectional views of all equipment showing details of construction.
- E. Listing of pump components and materials.
- F. Electrical elementary diagrams, internal connection diagrams, and external interconnection diagrams drawn in accordance with JIC and/or ICS standards. Connection diagrams shall be the conventional type with lines showing point-to-point wiring and must show terminals and devices as viewed by the electrician; wireless or wire schedule types are not acceptable.
- G. Local control panel layout drawings indicating the front door and rear panel equipment arrangement and dimensions.
- H. Catalog data on all ancillary electrical components, including limit switches.

1.5 PATENTS AND CLAIMS

- A. The Contractor shall be responsible for all patents and licenses relating to the furnishing and use of the equipment supplied hereunder and to any special construction inherent to the installation of said equipment, and the Contractor shall pay all patent fees and license costs and shall indemnify the Owner and the Engineer from all claims pertaining thereto in accordance with these specifications.

1.6 FACTORY TESTS

- A. Each pump to be delivered under this Section shall be tested for performance at the pump manufacturer's factory to determine head versus capacity, efficiencies, and kilowatt draw required for the operating points that are specified. All tests shall be run in accordance with the latest edition of the American Hydraulic Institute Standards and at the appropriate voltage and frequency. Testing shall also include, but not be limited to, the following:
1. Head vs. flow with five (5) equally spaced points including shutoff and maximum flow shall be certified.
  2. The input KW, speed, power factor, no load current, and torque characteristics shall be certified.
  3. Impeller, motor rating and electrical connections shall first be checked for compliance to the specifications.
  4. A motor and cable insulation test for moisture content or insulation defects shall be made.
  5. Prior to submergence, the pump shall be run dry to establish correct rotation and mechanical integrity.
  6. The pump shall be run for 30 minutes submerged, a minimum of 6 feet under water.
  7. After the operational test described in line No. 6, the insulation test described in line No. 4 shall be performed again.
  8. After testing, the pump shall be inspected to insure that the pump maintains full watertight integrity.
- B. A written report stating the tests have successfully been completed and providing the results of the test shall be provided for each pump. The pump manufacturer shall also certify that similar test have been conducted on pumps of a similar size for a period of not less than 5 years.

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PART 2. PRODUCTS

2.1 SUBMERSIBLE PUMPS

- A. Submersible wet pit chopper pumps designed to pump waste solids at heavy consistencies and shall be capable of withstanding submergence as required for the particular installation.
- B. The submersible pump system shall be Model S4V as manufactured by Vaughan Co., Inc., or Engineer approved equal conforming to the following and shown on the drawings.
- C. Pump Characteristics – Pumps will be located in existing 6'-0" diameter concrete wet well. Each pump shall have the following operating characteristics:

340 GPM @ 185' TDH, 60 HP, 1770 RPM

- D. Pump Design – The design shall be such that the pumping units will be automatically connected to the discharge piping when lowered into place on the discharge connection. The pumps shall be easily removable for inspection or service, requiring no bolts, nuts or other fastening to be removed for this purpose, and no need for personnel to enter pump well. Each pump shall be fitted with a stainless steel chain of adequate strength and length to permit raising the pump for inspection and removal.
- E. Pump Construction
  - 1. Casing and Back Pull-Out Adapter Plate: The pump casing shall be of semi-concentric design, with the first half of the circumference being cylindrical beginning after the pump outlet, and the remaining circumference spiraling outward to the 150 lb. flanged centerline discharge. Back pull-out adapter plate shall allow removal of pump components from above the casing, and allow external adjustment of impeller-to-cutter bar clearance. Casing and adapter plate shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics.
  - 2. Impeller: Shall be semi-open chopper type. Chopping/maceration of materials must be accomplished by the action of the curved, cupped and sharpened leading edges at the bottom of the impeller blades as they move across the cutter bar, creating a smooth efficient slicing effect. Pump out vanes must be provided across the entire diameter of the impeller on the backing plate, in order to reduce pressure in the seal area, and to draw lubricant down from the reservoir should seal leakage occur. The impeller shall be held in place with a key, shall have no axial adjustments or set screws, and shall not extend past the cutter bar. The impeller shall be cast

SECTION 11310-6  
SUBMERSIBLE PUMPING SYSTEMS

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steel heat treated to a minimum 60 Rockwell C Hardness, and dynamically balanced. Pumps with open type impellers or impellers without pump out vanes on the back plate shall not be allowed on this project. Additionally, impellers that mount directly to the motor shaft shall not be allowed as this results in an unacceptable overhang from the impeller to the lowest mechanical seal.

3. Cutter Bar: Shall be a single cast component recessed into the pump bowl, with a funnel shaped inlet opening. As a part of the casting, segment bars shall extend inwardly, to within 0.015" of the cutter nut. The set clearance between the cutter bar and impeller shall be adjustable to 0.005" to 0.020". The cutter bar shall be cast steel heat treated to a minimum 60 Rockwell C Hardness. Pumps with bolt on cutter bar segments shall not be allowed.
4. Upper Cutter: The impeller pump-out vanes shall be specially modified to shear against an upper cutter assembly mounted into the back side of the casing, in order to eliminate any build-up of rags, hair, or other stringy material in the seal area or between the impeller and the pump casing. The upper cutter shall consist of no more than 2 cutting anvils to minimize the potential for binding. The set clearance between the impeller and upper cutter shall be adjustable to 0.010" or less. The upper cutter shall be cast steel heat treated to a minimum 60 Rockwell C Hardness. The upper cutter shall be a replaceable item and be separate from the casing back plate. Pump designs lacking a cutting feature behind the impeller to prevent debris wrapping around the shaft shall not be allowed.
5. Cutter Nut: The cutter nut shall be used to affix the impeller to the shaft, and to eliminate binding or wrapping of stringy materials at the pump inlet. The cutter nut shall consist of a hex head sufficiently sized for ease of removal, and shall include an integral cast anvil which shears against the adjacent surface of the segment bars on the cutter bar. The cutter nut shall be cast steel heat treated to a minimum 60 Rockwell C Hardness. Due to the solids handling demand in this application, nuts, bolts, or other impeller securing devices that lack the ability to cut debris from the pump suction shall not be allowed on this project.
6. Pump Shafting: The pump stub shaft and impeller shall be supported by ball bearings. Shafting shall be heat treated steel, with a minimum diameter of 1.5 inches in order to minimize deflection during solids chopping. Mounting of the pump impeller directly to the motor shaft shall not be allowed on this project as this results in an unacceptable overhang distance from the impeller to the lowest mechanical seal.
7. Bearing Housing: Shall be ductile cast iron, and machined with piloted bearing fits for concentricity of all components. Piloted motor mount shall firmly align motor on top of bearing housing.

SECTION 11310-7  
SUBMERSIBLE PUMPING SYSTEMS

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8. Thrust Bearings: Shaft thrust in both directions shall be taken up by two back-to-back mounted single-row angular contact ball bearings. Overhang from the centerline of the lower thrust bearing to the seal faces shall be a maximum of 1.2". A third mechanical seal shall be provided to isolate the bearings from the pumped media at operating temperatures to 250°F. The third seal, as well as the thrust bearings shall be oil bath lubricated in the bearing housing by I.S.O. Grade 46 turbine oil, with a minimum B-10 life rated 100,000 hours. Shaft overhang exceeding 1.2 inches from the center of the lowest thrust bearing to the seal faces shall be considered unacceptable.
  9. Pump Mechanical Seal: Shall be fitted with silicon carbide seal faces to provide long life expectancy in the presence of grit and abrasive solids. The seal shall ride on a 316 stainless steel shaft sleeve, with the seal tension held by 3 set screws. Seal shall be tested for flatness within 2 Helium light bands under a Helium light source and optical flat.
  10. Automatic Oil Level Monitor: A clear PVC oil reservoir with float switch shall be mounted at the top of the wet well, with a hose feeding down to the side of the bearing housing to detect oil level and shut off the motor in event of low oil level. A sensitive relay shall be included for mounting in the motor control panel.
  11. Shaft Coupling: The submersible motor shall be close coupled directly to the pump shaft using a solid sleeve coupling, which is keyed to both the pump and motor shafts. Slip clutches and shear pins between the shaft and the motor are considered unacceptable.
  12. Stainless Steel Nameplates: Shall be attached to the pump and drive motor giving the manufacturer's model and serial number, rated capacity, head, horsepower, speed and all pertinent data.
- F. Submersible Electric Motor - The submersible motor shall be U/L LISTED EXPLOSION PROOF for Class 1, Group D, Division 1 hazardous locations, rated at 60 HP, 1750 RPM, 460 volts, 60 Hertz and 3 phase, with a 1.15 service factor and Class F insulation. Motor shall be rated for 15 minutes of in-air operation and shall have tandem mechanical seals in oil bath and dual moisture sensing probes. The upper and lower seals shall be John Crane Type 21 with carbon ceramic faces. The lower motor seal shall be exposed only to the lubricant in the bearing housing, with no exposure to the pumpage. Motor shall include two normally closed automatic resetting thermostats connected in series and imbedded in adjoining phases. Motor frame shall be cast iron, and all hardware and shaft shall be stainless steel. Pump designs where the lower motor mechanical seal is exposed to the pumpage will allow for pumpage to contaminate the submersible motor in the event of a lower motor seal failure. Therefore, designs where the lower motor seal is exposed to the pumpage will not be allowed on this project.

Motor Protection:

1. The stator shall incorporate two thermostats connected in series and imbedded in adjoining phases. Should high temperature occur, the thermostats shall open, stop the motor and activate an alarm.
  2. The motor oil chamber shall include dual conductance probes for sensing the presence of moisture in the oil chamber. If moisture enters the oil chamber, the motor shall stop and an alarm shall be activated.
  3. The thermostats and moisture sensing conducting probes shall be monitored from the pump control panel.
  4. The wires for the thermostats and moisture sensing probes may be a part of a composite motor cable. If separate cables are provided, they shall be of adequate length to reach the control panel without splicing.
- G. Guide Rail System - Provide a guide rail system consisting of two stainless steel guide rails, cast ductile iron pump guide bracket and discharge elbow with mounting feet and 125 lb. flanges, an upper guide rail mounting bracket and intermediate guide brackets every 10 feet. Seal of the pump at the discharge flange shall be accomplished by a single downward linear motion of the pump with the entire weight of the pump guided to and pressing against the discharge connection; no part of the pump shall bear directly on the sump floor and no rotary motion of the pump shall be required for sealing. Sealing at the discharge shall be effected to insure a positive leak proof system and for ease of removal. The pump shall be guaranteed not to leak at the discharge flange. Other forms of guiding, such as straightening vanes, etc., shall not be considered equal.
- H. Surface Preparation - SSPC-SP5 commercial sandblast, and finish coated with Tnemec epoxy.
- I. Pump Test – The pump manufacturer shall perform the following tests on each pump before shipment from the factory:
1. Megger the pump for insulation breaks or moisture.
  2. Prior to submergence, the pump shall be run dry and be checked for correct rotation.
  3. Pump shall be run for 30 minutes in a submerged condition.
  4. Pump shall be removed from test tank, meggered immediately for moisture; oil plugs removed for checking of upper seal and possible water intrusion of stator housing.
  5. A written certified test report giving the above information shall be supplied with each pump at the time of shipment.
  6. All pump cable ends will then be fitted with a rubber shrink fit boot to protect cable prior to electrical installation.

7. Cables – Provided for pump feeders and pump controls shall be installed in conduit from control centers to entrance point in wet well.

## 2.2 DUPLEX PUMP CONTROLS & LEVEL MEASUREMENT DEVICES

- A. See the electrical Drawings.

## 2.3 PIPING AND FITTINGS

- A. All sewage piping and fittings within the pump station shall be ductile iron and of the size shown on the drawings and as specified in Section 02350.

## 2.4 VALVES

- A. All above ground valves greater than three inches shall be flanged. See Section 02350.

## 2.5 ANCHOR BOLTS AND FASTENERS

- A. Anchor bolts, nuts, washers, and fasteners shall be furnished with the equipment herein specified and set in conformance with templates or drawings also supplied by the manufacturer. All anchor bolts, studs, fasteners, washers, and nuts shall be Type 316 stainless steel. The Contractor shall install all anchor bolts, studs, washers, nuts and fasteners required to complete the work of this Contract.

## 2.6 VALVE PIT

- A. The Valve Pit shall be either cash-in-place concrete or precast concrete manhole sections as shown on the Drawings. Precast concrete manholes shall be in accordance with ASTM C 858, constructed and installed in accordance with the Drawings and as specified in Section 03411.

## 2.7 CHECK VALVES

- A. Check valves shall be constructed of heavy cast iron with bronze and stainless steel fittings. It shall prevent reverse flow back through the valves when the inlet pressure decreases below the delivery pressure. The valve must be tight seating, and must operate without hammer or shock. Valves shall meet or exceed the latest requirements of AWWA C-508. The seat ring must be renewable and shall be securely held in place by a threaded joint. The valve disc shall be of cast iron and shall be hinged above its seat so that perfect closure is always attained. Check valves for all pump discharge lines shall have outside spring and lever. The high point of the valve shall be tapped and provided with a stopcock for bleeding air. Valves shall be rated for 175 psi working pressure. Check valves shall be equal to GA Industries Fig. 230.

2.8 PLUG VALVES

- A. See Section 02530

2.9 LIFTING CRANE

- A. The Contractor, not the pump manufacture, shall furnish and install a jib crane in accordance with Section 11340.

2.10 GAUGES

- A. Pressure gauges shall be equal to “Plant PRO Gauge with Flushable Protector”, 4”-diameter with top and bottom isolation valve. Gauge shall have pressure range of 0-200 psi.

PART 3. EXECUTION

3.1 ONSITE OBSERVATION OF WORK

- A. The Engineer shall have the right to require that any portion of the work that is not done in his presence and any work covered up after such instruction shall be exposed by the Contractor for observation. However, if the contractor notifies the engineer that such work is scheduled and the Engineer fails to appear within 48 hours, the Contractor may proceed without him. All work done and materials furnished shall be subject to review by the Engineer or project representative, and all improper work shall be reconstructed, and all materials which do not conform to the requirements of the specifications shall be removed from the work upon notice being received from the Engineer for the rejection of such materials. The Engineer shall have the right to mark rejected materials so as to distinguish them as such.

The Contractor shall give the Project Engineer or Project Representative a minimum of 48 hours-notice for all required observations or tests.

It will also be required of the Contractor to keep accurate, legible records of the location of all water lines, service laterals, valves, fittings, and appurtenances. These records will be prepared in accordance with the paragraph on “As-built Data” in the Special Conditions. Final payment to the Contractor will be withheld until all such information is received and accepted.

3.2 INSTALLATION

- A. The Contractor shall furnish and install the pumps at the locations shown on the Contract Drawings and in accordance with the pump manufacturer’s specification and recommendations. All discharge elbows shall be mounted on concrete pedestals prepared for them and over anchor bolts set in the concrete. Pump pedestals shall be carefully set at proper elevation, location and alignment and leveled after which they

shall be properly grouted in with grout filling the entire underside of the base. Grouting shall be as recommended by the manufacturer and specified under Section 03600. All piping shall be brought to the pump connections in such a manner as to prevent the possibility of applying any loads or stresses to pump connections.

### 3.3 FOUNDATION

- A. Install pre-cast concrete valve pit base on dry, crushed stone foundation in strict accordance with plans and specifications and after approval of foundation by the Engineer.

### 3.4 PIPING AND VALVES

- A. Install piping and valves as shown on the drawings and as specified by Section 02530.

### 3.5 ELECTRICAL SYSTEMS

- A. Shall be installed in accordance with the electrical Drawings.

### 3.6 TOOLS AND LUBRICANTS

- A. The Contractor shall furnish a complete set of any special tools required for the maintenance and operation of this equipment, as designated by the equipment manufacturer.
- B. A one-year supply of each type of lubricant required for each piece of equipment and one grease gun for each type lubricant required shall be furnished under this Section.

### 3.7 PAINTING

- A. Unless otherwise specified, all milled steel parts not buried in concrete cadmium plated, galvanized or plastic covered, shall be shop primed with one coat of paint recommended as compatible with finished costs by the manufacturer whose paint is to be used for field painting under Section 09900 - Painting. Stainless steel, aluminum, brass, bronze, galvanized or cadmium plated steel, and plastic covered parts shall not be painted. Required field painting of all surfaces including the interior and exterior of the wet well shall be as specified under Section 09900 and on the Drawings. Machined and finished surfaces shall be protected with a suitable lubricant to prevent rusting.
- B. The Contractor shall, under this Section remedy all damage to shop coatings after installation of equipment and to the satisfaction on the engineer.

3.8 FIELD TEST

- A. The pumps installed shall be tested at start-up by the Pump Manufacturer or his Authorized Representative. Provide the services of the manufacturer's service representative for a minimum of one (1) day for inspection, start-up, testing and operator training. Provide Engineer with at least seven (7) day's prior notice of start-up and testing. All hydraulic, mechanical and electrical tests shall be run to insure the proper installation, operation, and maintenance of the pumps. As a minimum, the site tests shall include check for:
1. Compliance with operating requirements.
  2. Correct rotation before mounting to the discharge connection.
  3. Balanced voltage and current.
  4. Proper seating of the pumping to the discharge connections.
  5. Insurance that the connection between the pump and discharge connection does not leak. If the connection leads to discharge elbow shall be replaced by the pump manufacturer at no cost to the supplying contractor or owner.
  6. Perform two (2) hour field test of completed work (at each Location) operating under actual field conditions witnessed by the Engineer. Operate pump station for a minimum of two (2) hours, running each pump and exercising all controls to demonstrate satisfactory operation. Verify pumping rate, power usage and discharge pressure for at least two points on the head/capacity curve for each pump.

3.9 PUMP WARRANTY

- A. The pump manufacturer shall submit the proper documentation demonstrating that the pump manufacturer warrants the pumps being supplied to the Owner against defects in materials and workmanship for a period of one (1) year, including parts and labor.

END OF SECTION

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**SECTION 11340  
JIB CRANE  
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**SECTION 11340  
JIB CRANE**

**PART 1. GENERAL**

**1.1 SCOPE**

- A. The Contractor shall furnish and install at the locations shown on the Drawings and as specified or as directed, herein, one (1) jib crane complete with foundation, electric chain hoist and other accessories including all necessary labor, supervision, materials, tools, and appurtenances.
- B. This section shall include the complete installation and responsibility for the proper operation of the various components of this section. It shall also include painting, field-testing and additional services of the equipment supplier.
- C. It is the intent of this Contract that the installation shall be complete in all respects and ready for use and operation. The Contractor will be responsible for all incidental details and for any special construction necessary to complete the work in an acceptable manner.

**1.2 RELATED WORK**

Other work required to replace the force main as specified in the following sections of these specifications:

SECTION NO.	TITLE
Division 3	Concrete
Division 9	Finishes
11310	Submersible Pumping System

**1.3 QUALITY ASSURANCE**

- A. Unit Responsibility – The Contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the representative of the Engineer/Owner of any discrepancy before performing the work.
- B. The Contractor shall assign unit responsibility to the jib crane manufacturer for the equipment specified in this section in order to enhance compatibility, ease of construction, and efficient maintenance of the components of each system.
- C. Manufacturer – Material and equipment shall be standard products of a manufacturer who has made them for a minimum of five years.
- D. Shipment and Storage – The equipment shall be protected during shipment and storage as specified in Section 01605.

- 
- E. Environmental Conditions – The equipment to be provided under this section shall be suitable for installation and operation in an outdoor environment and subject to weather.

#### 1.4 SUBMITTALS

The following materials shall be submitted in accordance with the requirements of Section 01300.

- A. Manufacturer's Data – Bulletins.
- B. Motor submittal data including motor horsepower, RPM, frame size, weight and description bulletin of the motor to be furnished. Include motor manufacturer's certified dimension sheet that lists motor features and include typical motor data sheet.
- C. Shop drawings including dimensions and cross sectional views of all equipment showing details of construction.
- D. Listing of crane components and materials.
- E. Electrical elementary diagrams, internal connection diagrams, and external interconnection diagrams shall be drawn in accordance with JIC and/or ICS standards. Connection diagrams shall be the conventional type with lines showing point-to-point wiring and must show terminals and devices as viewed by the electrician.
- F. Catalog data on all ancillary components.

#### 1.5 PATENTS AND CLAIMS

- A. The Contractor shall be responsible for all patents and licenses relating to the furnishing and use of the equipment supplied hereunder and to any special construction inherent to the installation of said equipment, and the Contractor shall pay all patent fees and license costs and shall indemnify the Owner and the Engineer from all claims pertaining thereto in accordance with these specifications.

### PART 2. PRODUCTS

#### 2.1 JIB CRANE

- A. Provide one (1) jib crane suitable at the pump station as shown on the plans and as specified herein suitable for lifting submersible pumps.
- B. The crane shall be capable of lifting the following:

---

Pump Weight: 2,000 lbs  
Min. Vertical Travel: 25'-0"

- C. Crane shall be designed in accordance with AISC Steel Construction Manual 8<sup>th</sup> Edition and be in accordance with OSHA Specification 1910.179 and ANSI Specification B30.11 as they apply to jib cranes. Welding shall be in accordance with AWS D14.1. All holes in steel with bearing loads shall be either punched or drilled. All structural shapes shall be a minimum ASTM A-36 designation. All pipe shall be structural Grade ASTM A-53 and tubing shall be ASTM A-500. All plate and round bar shall have a minimum yield strength of 36 ksi. The cranes shall be as manufactured by Gorbel or Engineer approved equal.
- D. The crane shall be furnished with an electric chain hoist. The motor shall be optimized for low-vibration, quiet operation 8/2-pole squirrel-cage motor with cylindrical rotor. All motors shall have Class F insulation and protected from overheating by thermal protectors imbedded in the windings. Motors shall be totally enclosed, fan cooled (TEFC). Enclosure shall be outdoor rated IP 55 with a duty of 60% running time and 360 starts/hour. The motors shall be 240 volt, 1 phase, 60 Hz with 0.87 Hp at low speed and 3.62 Hp at high speed. The standard hoist controls shall include, but not be limited to, brake wear indicator, load indicator, history recorder, hour counter and service history. A 24V control pendant shall be fitted that can be adjusted to any height, at any time. A self-monitoring brake/coupling system shall hold the load in any situation. A speed sensor shall prevent the load from sinking during switching operations. A slip clutch shall be mounted between hoist motor and brake to function as a second emergency upper/lower hook travel end stop as well as protect against overloads. A self-centering, floating chain guide and sprocket shall be included along with a chain long enough to lift each pump. The hoist shall be as manufactured by Demag or Engineer approved equal.

### PART 3. EXECUTION

#### 3.1 ONSITE OBSERVATION OF WORK

- A. The Engineer shall have the right to require that any portion of the work that is not done in his presence and any work covered up after such instruction shall be exposed by the Contractor for observation. However, if the contractor notifies the engineer that such work is scheduled and the Engineer fails to appear within 48 hours, the Contractor may proceed without him. All work done and materials furnished shall be subject to review by the Engineer or project representative, and all improper work shall be reconstructed, and all materials which do not conform to the requirements of the specifications shall be removed from the work upon notice being received from the Engineer for the rejection of such materials. The Engineer shall have the right to mark rejected materials so as to distinguish them as such.

The Contractor shall give the Project Engineer or Project Representative a minimum of 48 hours-notice for all required observations or tests.

It will also be required of the Contractor to keep accurate, legible records of the location of all equipment and appurtenances. These records will be prepared in accordance with the paragraph on "As-built Data" in the Special Conditions. Final payment to the Contractor will be withheld until all such information is received and accepted.

### 3.2 INSTALLATION

- A. The Contractor shall furnish and install the jib crane at the location shown on the Contract Drawings and in accordance with the crane manufacturer's specifications and recommendations. Grouting shall be as recommended by the manufacturer and specified under Section 03600.

### 3.3 FOUNDATION

- A. Install crane foundation on dry, crushed stone foundation in strict accordance with plans and specifications and after approval of foundation by the Engineer.

### 3.4 ELECTRICAL SYSTEMS

- A. Shall be installed in accordance with the electrical Drawings.

### 3.5 TOOLS AND LUBRICANTS

- A. The Contractor shall furnish a complete set of any special tools required for the maintenance and operation of this equipment, as designated by the crane manufacturer.
- B. A one-year supply of each type of lubricant required for each piece of equipment and one grease gun for each type lubricant required shall be furnished under this Section.

### 3.6 PAINTING

- A. The cranes shall be wire brushed and/or solvent wiped to clean and remove debris, dirt and oils. One (1) coat of self-priming paint shall be applied and baked on. The cranes shall be finished using the manufacturer's standard finish with the color selected by the Owner from the manufacturer's standard colors.
- B. The Contractor shall remedy all damage to shop coatings after installation of equipment and to the satisfaction on the Engineer.

### 3.7 FIELD TEST

- A. The jib crane installed shall be tested at start-up by the Manufacturer or his Authorized Representative. Provide the services of the manufacturer's service

representative for a minimum of one (1) day for inspection, start-up, testing and operator training. Provide Engineer with at least seven (7) day's prior notice of start-up and testing. All mechanical and electrical tests shall be run to insure the proper installation, operation, and maintenance of the crane. As a minimum, the site tests shall include check for:

1. Compliance with operating requirements including lifting the submersible pumps from the wet well and providing the minimum vertical travel.

### 3.8 WARRANTY

- A. The cranes shall come with a 5-year warranty against defects in material and workmanship. The hoist shall come with a 2-year warranty against defects in material and workmanship and parts for labor. The Contractor shall warranty in the installation and workmanship for a period of one (1) year, including parts and labor.

END OF SECTION

REVISIONS:	
A INITIAL RELEASE	10/16/15
B RELEASED FOR GOVT REVIEW	12/17/15
C RELEASED FOR BIDS	01/06/16
D ADDENDUM #2	03/30/16

**WILLOW SPRINGS  
PUMP STATION REHABILITATION**  
FOR THE  
**CITY OF STOCKBRIDGE**  
HENRY COUNTY, GEORGIA

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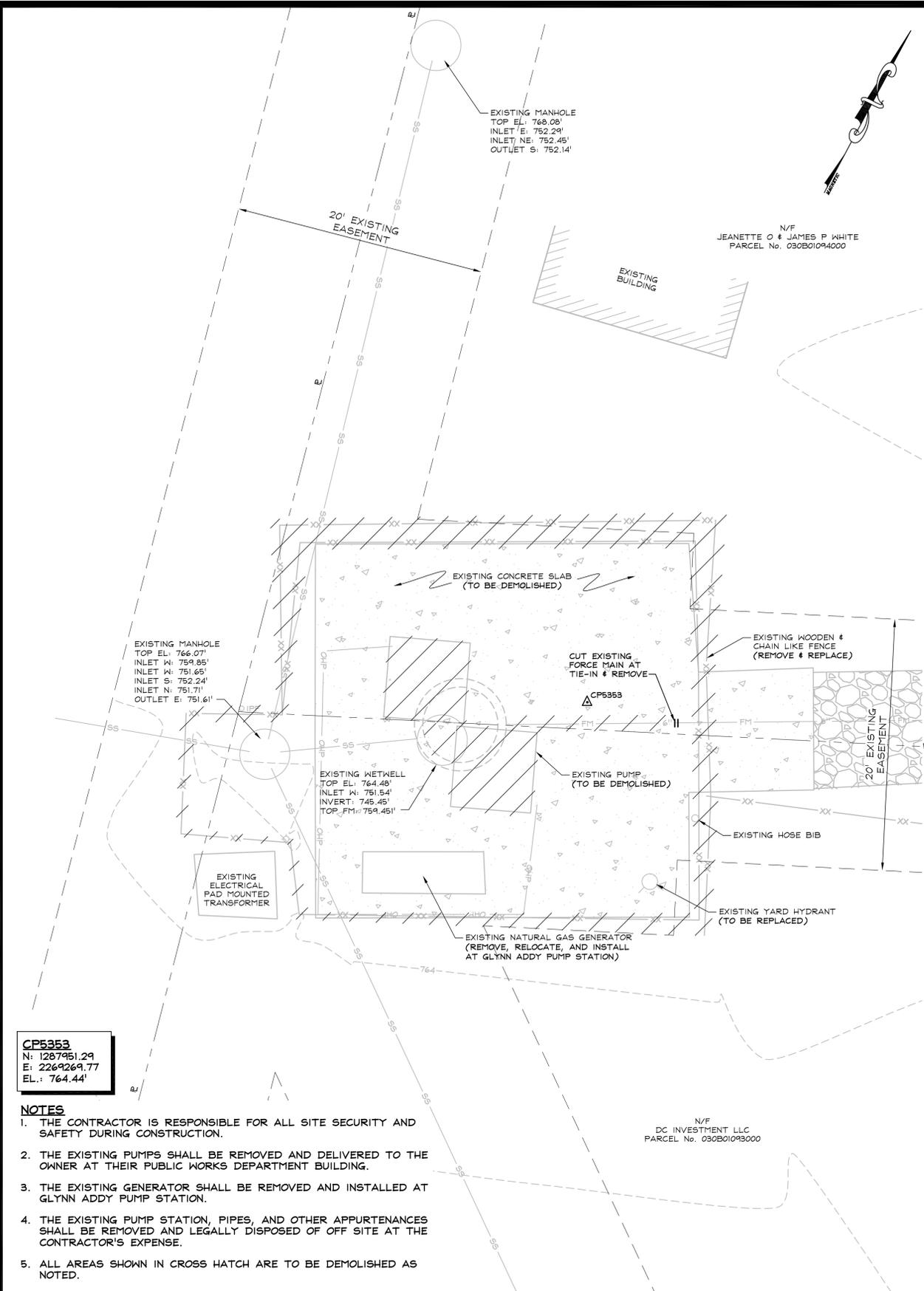
CONSULTING ENGINEERS

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DSGN:	MCB
DRWN:	HCC/ZWT
SCALE:	AS SHOWN
DWG. NAME:	SITE PLAN
PROJ. NO.:	S9100.004
DATE:	DECEMBER 2015
SHEET NO.:	3
OF 11 SHEETS	

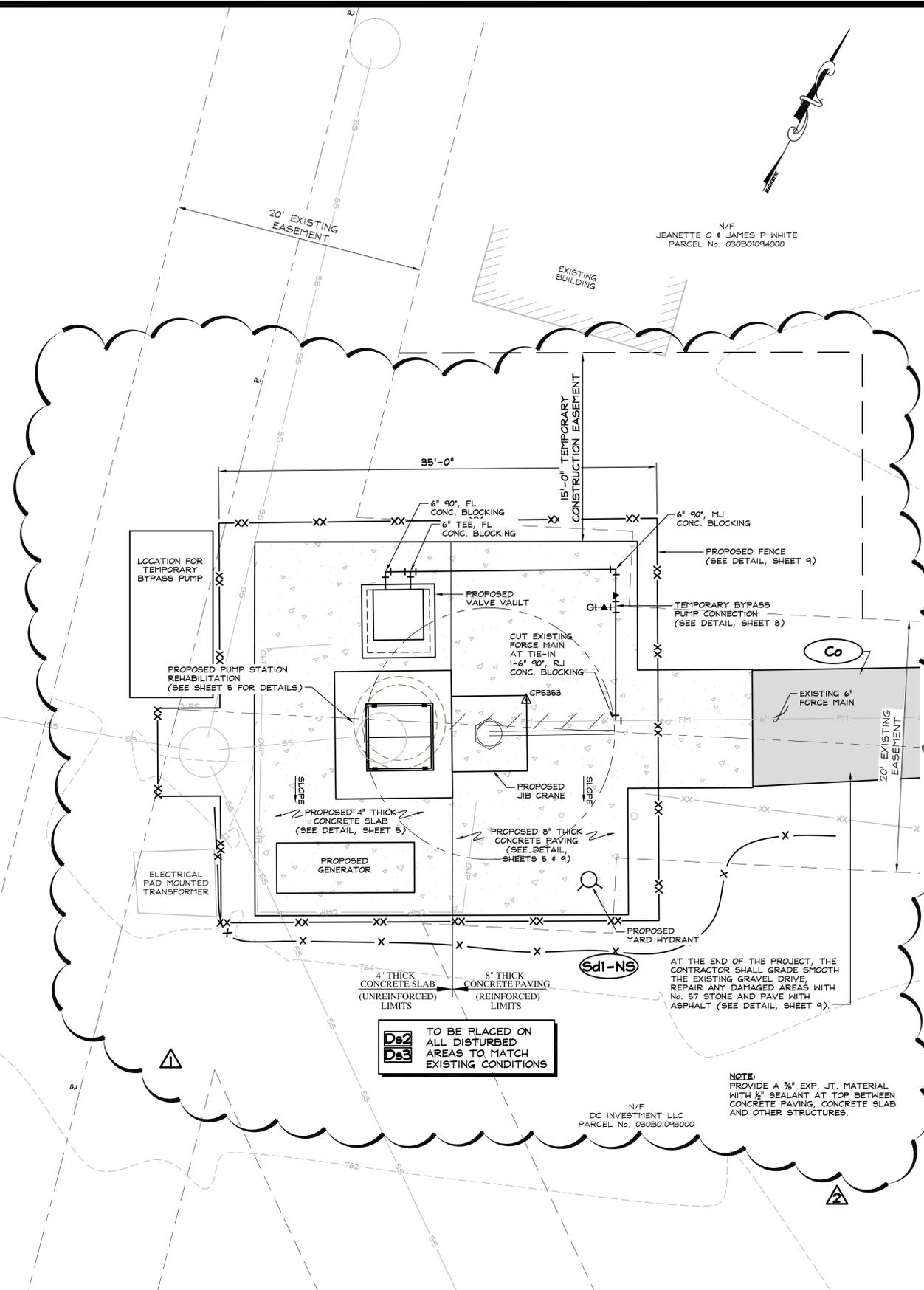
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**CP5353**  
N: 1267951.29  
E: 2269269.77  
EL.: 764.44'

- NOTES**
1. THE CONTRACTOR IS RESPONSIBLE FOR ALL SITE SECURITY AND SAFETY DURING CONSTRUCTION.
  2. THE EXISTING PUMPS SHALL BE REMOVED AND DELIVERED TO THE OWNER AT THEIR PUBLIC WORKS DEPARTMENT BUILDING.
  3. THE EXISTING GENERATOR SHALL BE REMOVED AND INSTALLED AT GLYNN ADDY PUMP STATION.
  4. THE EXISTING PUMP STATION, PIPES, AND OTHER APPURTENANCES SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF SITE AT THE CONTRACTOR'S EXPENSE.
  5. ALL AREAS SHOWN IN CROSS HATCH ARE TO BE DEMOLISHED AS NOTED.

**EXISTING PUMP STATION SITE PLAN**



**TO BE PLACED ON ALL DISTURBED AREAS TO MATCH EXISTING CONDITIONS**

**Ds2**  
**Ds3**

**NOTE:** PROVIDE A 3/8" EXP. JT. MATERIAL WITH 1/2" SEALANT AT TOP BETWEEN CONCRETE PAVING, CONCRETE SLAB AND OTHER STRUCTURES.

**PROPOSED PUMP STATION SITE PLAN**

PUMP STATION SITE PLANS



Know what's below.  
Call before you dig.



LEVEL II CERTIFICATION No.: 3581

REVISIONS:	
A INITIAL RELEASE	10/16/15
B RELEASED FOR GOV'T REVIEW	12/17/15
C RELEASED FOR BIDS	01/06/16
D ADDENDUM #2	03/30/16

**WILLOW SPRINGS**  
**PUMP STATION REHABILITATION**  
 FOR THE  
**CITY OF STOCKBRIDGE**  
 HENRY COUNTY, GEORGIA  
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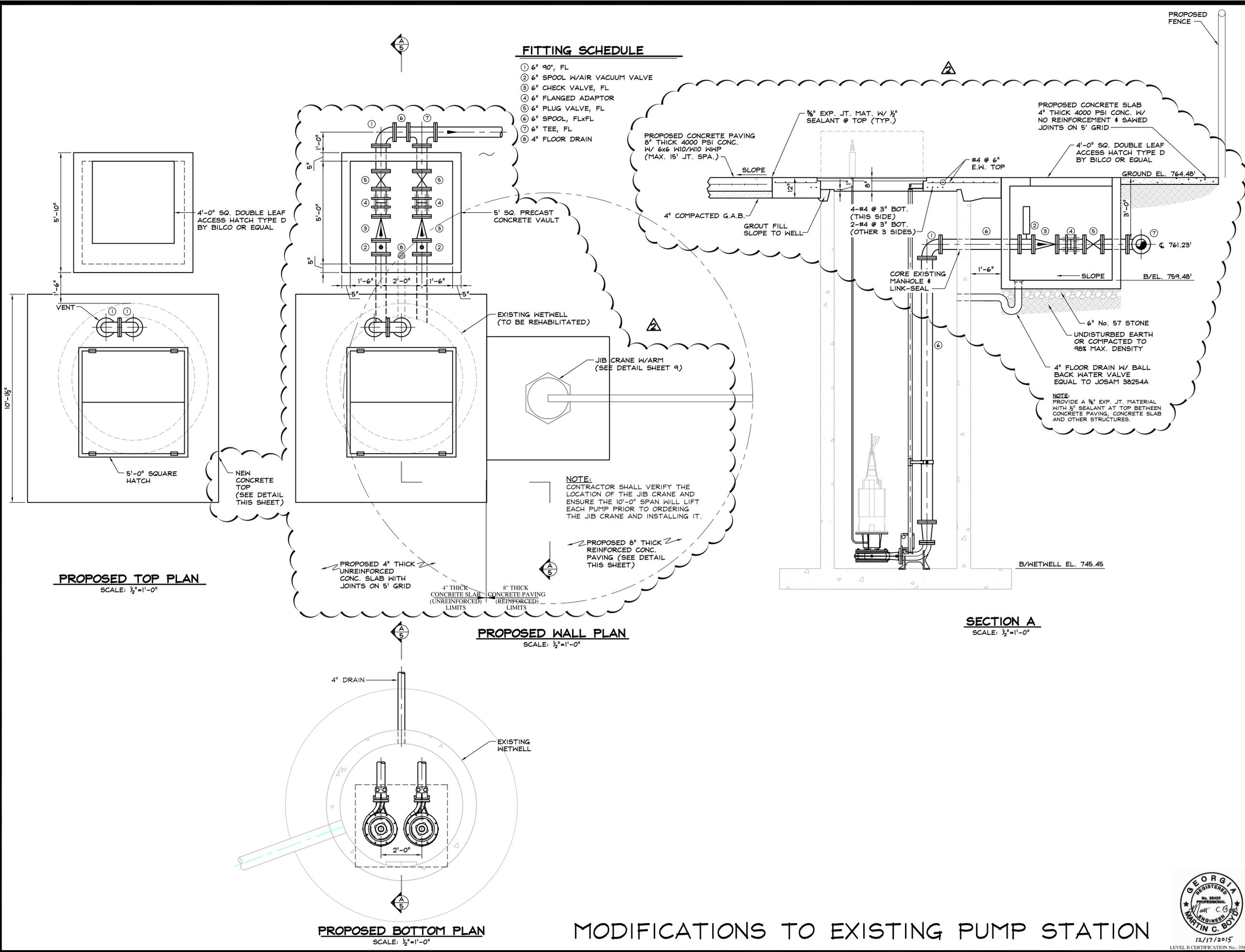
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DSGN:	MCB
DRWN:	HCC/ZWT
SCALE:	AS SHOWN
DWG. NAME:	PUMP STATION
PROJ. NO.:	S9100.004
DATE:	SHEET NO.:
DECEMBER 2015	5
	OF 11 SHEETS



**FITTING SCHEDULE**

- ① 6" 90°, FL
- ② 6" SPOOL W/AIR VACUUM VALVE
- ③ 6" CHECK VALVE, FL
- ④ 6" FLANGED ADAPTOR
- ⑤ 6" PLUG VALVE, FL
- ⑥ 6" SPOOL, FLxFL
- ⑦ 6" TEE, FL
- ⑧ 4" FLOOR DRAIN



**PROPOSED TOP PLAN**  
SCALE: 1/2"=1'-0"

**PROPOSED WALL PLAN**  
SCALE: 1/2"=1'-0"

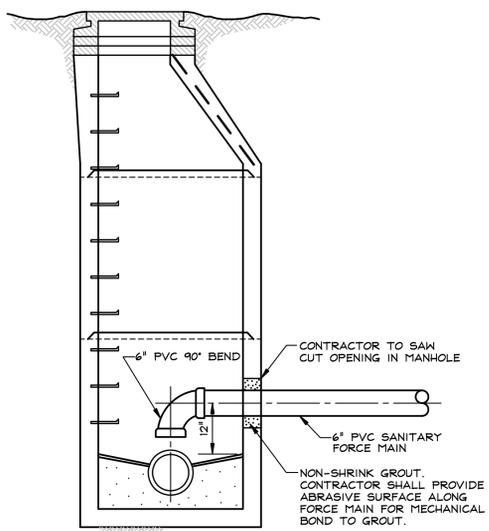
**SECTION A**  
SCALE: 1/2"=1'-0"

**PROPOSED BOTTOM PLAN**  
SCALE: 1/2"=1'-0"

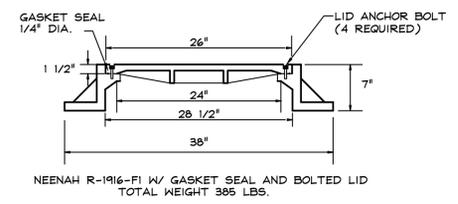
**MODIFICATIONS TO EXISTING PUMP STATION**

NOTE: CONTRACTOR SHALL VERIFY THE LOCATION OF THE JIB CRANE AND ENSURE THE 10'-0" SPAN WILL LIFT EACH PUMP PRIOR TO ORDERING THE JIB CRANE AND INSTALLING IT.

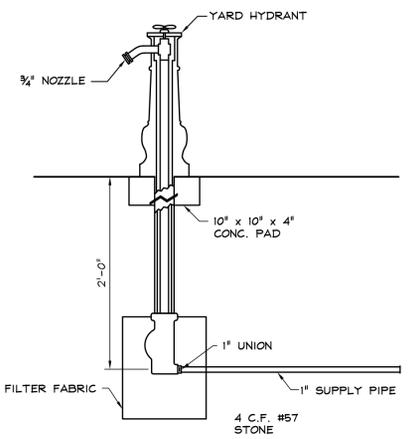
NOTE: PROVIDE A 3/8" EXP. JT. MATERIAL WITH 1/2" SEALANT AT TOP BETWEEN CONCRETE PAVING, CONCRETE SLAB AND OTHER STRUCTURES.



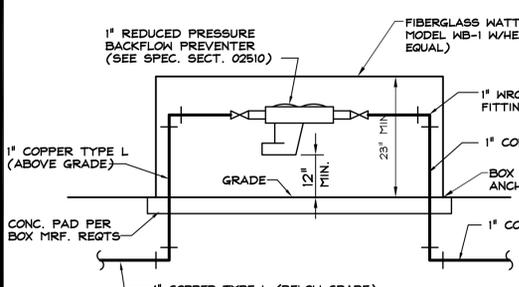
**FORCE MAIN CONNECTION TO EXISTING MANHOLE**  
N.T.S.



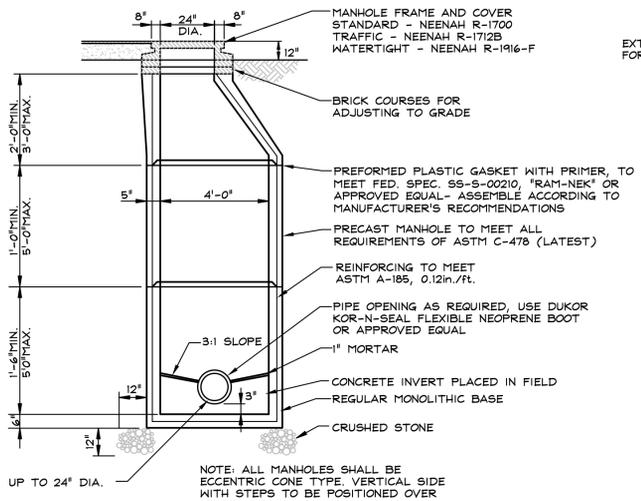
**MANHOLE COVER DETAIL**  
N.T.S.



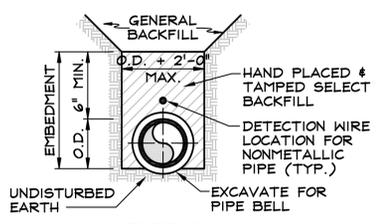
**YARD HYDRANT**  
N.T.S.



**BACKFLOW PREVENTER**  
N.T.S.



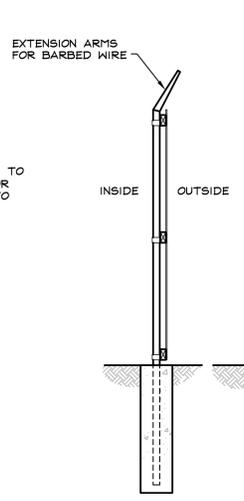
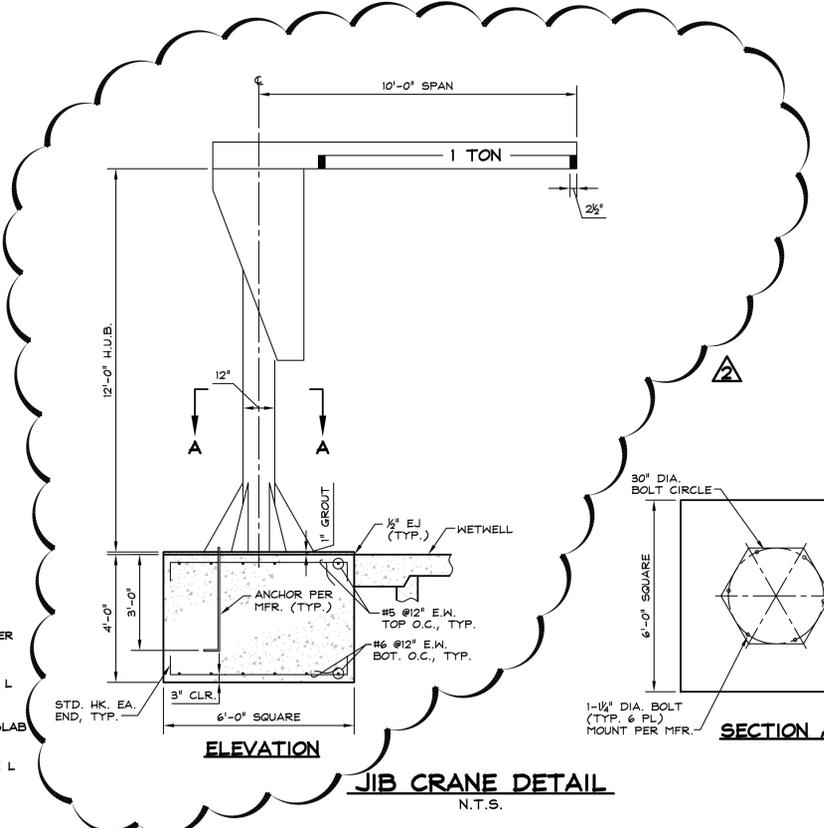
**PRECAST CONCRETE MANHOLE DETAIL**  
N.T.S.



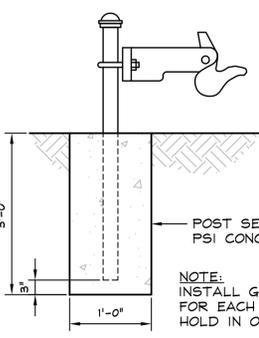
**TYPE 2 (FLAT BOTTOM TRENCH)**  
N.T.S.

NOTES  
1. SEE SPECIFICATION SECTION 02315 FOR ADDITIONAL REQUIREMENTS.

**PIPE BEDDING AND HAUNCHING DETAILS GRAVITY AND PRESSURE PIPES**  
N.T.S.

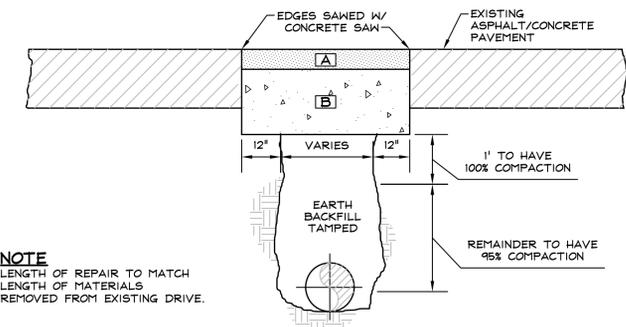


**GATE KEEPER**  
N.T.S.



**WOODEN SECURITY FENCE & GATE DETAIL**  
SCALE: 3/8"=1'-0"

NOTES  
1. WOODEN FENCE SHALL BE STAINED INSIDE AND OUTSIDE FACES WITH TWO COATS OF STAIN. COLOR SELECTED BY OWNER.  
2. END AND CORNER POSTS SHALL BE 3" DIA. GALV. STEEL POSTS WEIGHING 5.79#/LF.  
3. THE CONTRACTOR SHALL PROVIDE BRACE AND TENSION BANDS AT ALL GATE POSTS, CORNER POSTS, AND PULL POSTS BY MEANS OF 1 1/2" O.D. HORIZONTAL COMPRESSION MEMBERS. CORNER POSTS SHALL BE BRACED IN EACH DIRECTION.  
4. ALLOW CONCRETE TO ATTAIN AT LEAST 75% OF ITS MINIMUM 28 DAY COMPRESSIVE STRENGTH, BUT NO SOONER THAN 7 DAYS AFTER PLACEMENT, BEFORE FENCING IS INSTALLED. DO NOT HANG GATES UNTIL CONCRETE HAD ATTAINED ITS FULL DESIGN STRENGTH.



NOTE  
LENGTH OF REPAIR TO MATCH LENGTH OF MATERIALS REMOVED FROM EXISTING DRIVE.

**CONCRETE ROADWAY**

A: 8" CLASS "B" CONCRETE PER GDOT SPEC 500  
B: N/A

**CONCRETE DRIVEWAY**

A: 6" CLASS "B" CONCRETE PER GDOT SPEC 500  
B: N/A

**GRAVEL DRIVEWAY**

A: 6" GRAVEL  
B: N/A

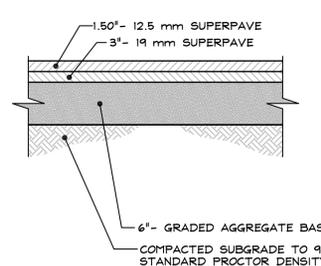
**ASPHALT DRIVEWAY**

A: 2" TYPE F ASPHALT  
B: N/A

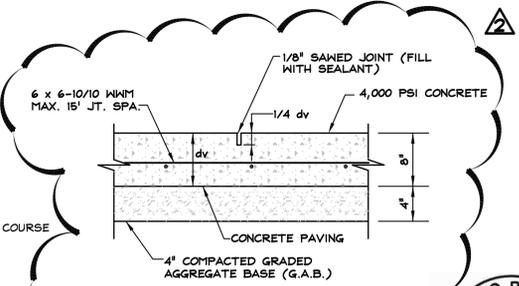
**ASPHALT ROADWAY**

A: TOP 2" OF PATCH TO BE REPLACED WITH SAME MATERIAL AS EXISTING SURFACE. BITUMINOUS TACK COAT OR PRIME APPLIED BEFORE PLACEMENT OF ASPHALTIC TOP.  
B: 8" CLASS "A" PORTLAND CEMENT CONCRETE

**PAVEMENT REPLACEMENT DETAIL**  
N.T.S.

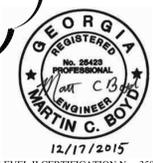


**TYPICAL ASPHALT PAVING**  
N.T.S.



**TYPICAL CONCRETE PAVING**  
N.T.S.

**PUMP STATION & SITE DETAILS**



REVISIONS:

A INITIAL RELEASE	10/16/15
B RELEASED FOR GOVT REVIEW	12/17/15
C RELEASED FOR BIDS	01/06/16
D ADDENDUM #2	03/30/16

WILLOW SPRINGS  
PUMP STATION REHABILITATION  
FOR THE  
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HENRY COUNTY, GEORGIA  
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DSGN:	MCB
DRWN:	HCC/ZWT
SCALE:	AS SHOWN
DWG. NAME:	DETAILS
PROJ. NO.:	S9100.004
DATE:	DECEMBER 2015
SHEET NO.:	9

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REVISIONS:	
A INITIAL RELEASE	10/16/15
B REVISED	12/17/15
C ADDENDUM	02/09/16
D ADDENDUM 2	03/28/16

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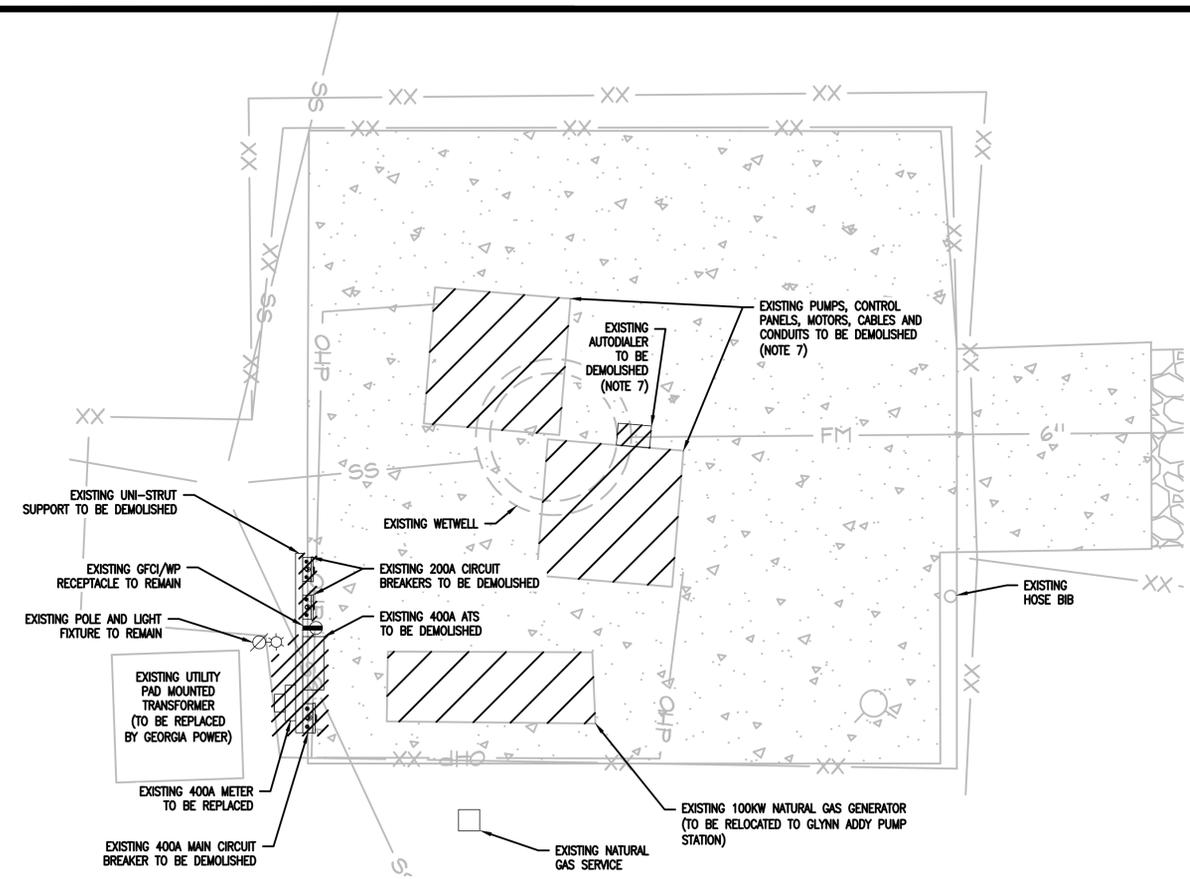
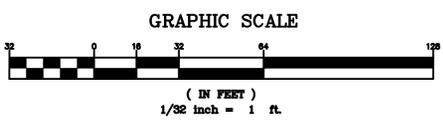
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DSGN:	AZ
DRWN:	JB
SCALE:	AS SHOWN
DWG. NAME:	E-3
PROJ. NO.:	S9100.004
DATE:	DECEMBER 2015
SHEET NO.:	E-3
	OF 6 SHEETS

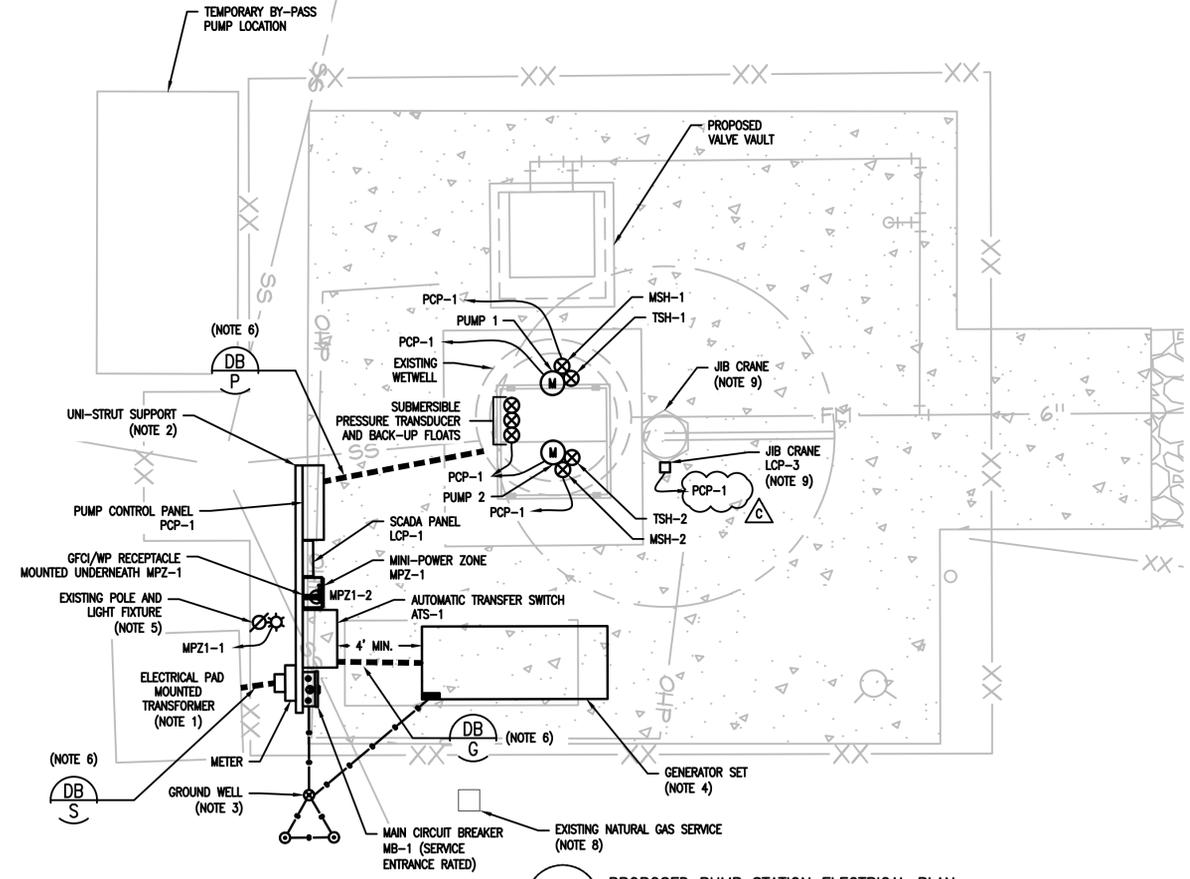
- NOTES:**
- SEE NOTE 1 ON DWG. E-2 FOR UTILITY CONTACT INFORMATION AND COORDINATION CONTACT.
  - CONTRACTOR SHALL PROVIDE UNI-STRUT SUPPORT AS SHOWN. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXACT LOCATION OF UNI-STRUT TO PROVIDE ADEQUATE WORKING CLEARANCES FOR ALL EQUIPMENT. SEE DETAIL C, ON DWG. E-6.
  - SEE DETAIL A ON DWG. E-6 FOR GROUND WELL INSTALLATION DETAILS.
  - CONTRACTOR SHALL FURNISH AND INSTALL GENERATOR SET AS SHOWN. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXACT LOCATION OF GENERATOR TO PROVIDE ADEQUATE WORKING CLEARANCES. SEE PAD AND GROUNDING DETAIL FOR GENERATOR ON DWG. E-6, DETAIL E.
  - CONTRACTOR SHALL PROVIDE CABLE/CONDUIT FROM PANELBOARD MPZ-1 TO ALL EXISTING SITE LIGHTING FIXTURES.
  - SEE DETAIL B ON DWG. E-6 FOR DUCT BANK INSTALLATION DETAILS.
  - ALL DEMOLISHED ELECTRICAL MOTORS/INSTRUMENTS/EQUIPMENT/ETC. SHALL BE RETURNED TO THE OWNER FOR RE-USE OR AS SPARES.
  - CONTRACTOR SHALL REWORK EXISTING NATURAL GAS SERVICE TO SUPPLY THE NEW AND LARGER GENERATOR SET. CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH INSTALLING AND UPGRADING NATURAL GAS SUPPLY TO THE GENERATOR.
  - CONTRACTOR SHALL PROVIDE AND INSTALL JIB CRANE IN LOCATION AS SHOWN. SEE SPEC 11340 FOR JIB CRANE CONTROL PANEL REQUIREMENTS. CONTRACTOR IS RESPONSIBLE FOR ALL CABLES AND CONDUITS ASSOCIATED WITH THE JIB CRANE SYSTEM.



1 LOCATION PLAN  
SCALE: 1/32" = 1'-0"

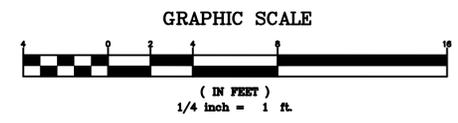


2 EXISTING PUMP STATION ELECTRICAL DEMOLITION PLAN  
SCALE: 1/4" = 1'-0"



3 PROPOSED PUMP STATION ELECTRICAL PLAN  
SCALE: 1/4" = 1'-0"

- LEGEND**
- DB-S  
1 - 3" C. (480V POWER TO MB-1)
- DB-G  
1 - 3" C. (480V POWER TO GEN-1)  
2 - 1" C. (120V POWER TO GEN-1)  
3 - 2" C. (CONTROLS)
- DB-P  
1 - 3" C. (480V POWER TO PUMP 1)  
2 - 3" C. (480V POWER TO PUMP 2)  
3 - 2" C. (SIGNALS TO PCP-1)  
4 - 1" C. (CONTROLS TO PCP-1)
- TO BE DEMOLISHED

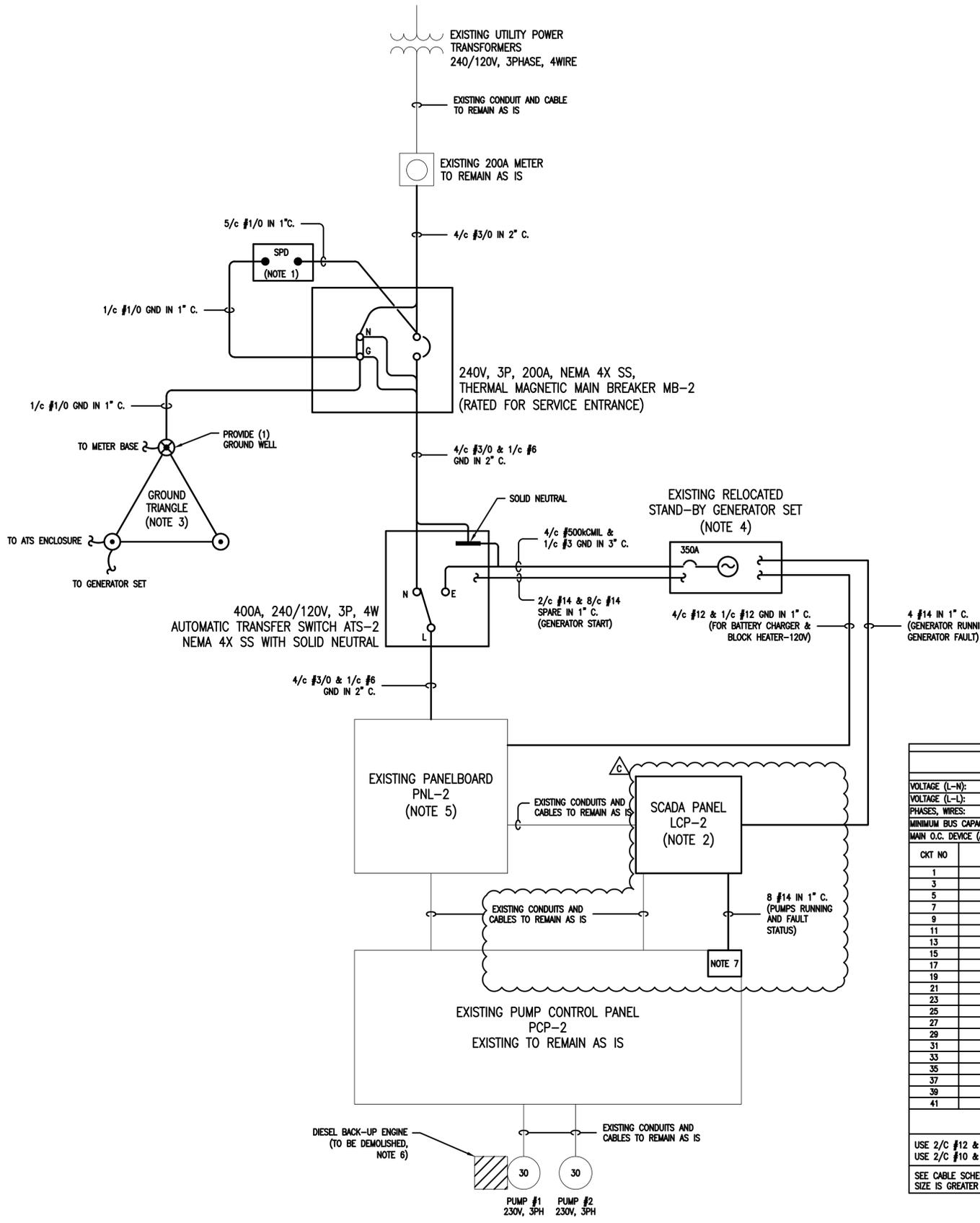


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**ONE LINE DIAGRAM NOTES:**

- CONTRACTOR SHALL PROVIDE SURGE PROTECTION DEVICE (SPD) IN NEMA 4X ENCLOSURE. SPD SHALL BE TOTAL PROTECTION SOLUTIONS CAT# TK-ST1203D240-F-XX WITH DISCONNECT SWITCH.
- DISCONNECT AND REMOVE EXISTING "RACO" VERBATIM SCADA PANEL AND REPLACE IT WITH NEW "MISSION CONTROLS" SCADA PANEL. CONTRACTOR SHALL RECONNECT 120VAC POWER AND EXISTING ALARMS TO THE NEW PANEL. SEE DWG. E-5 FOR DETAILS.
- CONTRACTOR SHALL PROVIDE A GROUND TRIANGLE CONSISTING OF THREE (3) 3/4" DIAMETER x 10' LONG COPPERCLAD GROUND RODS. RODS SHALL BE DRIVEN IN GROUND AND CONNECTED TOGETHER WITH #1/0 AWG BARE STRANDED COPPER CONDUCTORS. PROVIDE A GROUND WELL FOR ONE ROD. SEE DETAIL A ON DWG. E-6 FOR GROUND WELL INSTALLATION DETAILS.
- CONTRACTOR SHALL RELOCATE EXISTING WILLOW SPRING PUMP STATION 100kW 240/120V, 3 PHASE STAND-BY NATURAL GAS GENERATOR SET INCLUDING GENERATOR, GENERATOR CONTROL PANEL, AND MAIN CIRCUIT BREAKER. EXTEND AND UPGRADE IF NECESSARY EXISTING NATURAL GAS SERVICE PIPING TO GENERATOR. CONTRACTOR SHALL PROVIDE AND INSTALL NEW NEMA 4X SS AUTOMATIC TRANSFER SWITCH. GENERATOR CONTROL PANEL SHALL HAVE TWO (2) 120V, 10A RATED DRY CONTACTS FOR GENERATOR RUNNING STATUS AND COMMON ALARM FOR CONNECTION TO THE NEW SCADA.
- CONTRACTOR SHALL REWORK EXISTING PANELBOARD PNL-2 AS SHOWN IN THE SCHEDULE ON THIS SHEET TO ADD TWO (2) 20A, 1 POLE CIRCUIT BREAKERS FOR THE GENERATOR BATTERY CHARGER AND BLOCK HEATER. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR WHICH PHASE IS THE HIGH LEG. DO NOT INSTALL 1 POLE CIRCUIT BREAKERS ON THE HIGH LEG.
- CONTRACTOR SHALL DISABLE THE DIESEL BACK-UP ENGINE FOR ONE (1) EXISTING 30HP PUMP. CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH MODIFICATION TO THE EXISTING PUMP CONTROL PANEL AND REMOVAL OF THE DIESEL BACK-UP ENGINE.
- CONTRACTOR SHALL PROVIDE AND INSTALL FOUR (4) NORMALLY OPEN DRY CONTACTS FOR PUMP 1 AND 2 RUNNING STATUS AND FAULT STATUS FOR CONNECTION TO SCADA PANEL.

EXISTING PANELBOARD PNL-2											
VOLTAGE (L-N): 120V				ENCLOSURE TYPE: EXISTING							
VOLTAGE (L-L): 240V				MOUNTING: RECESSED							
PHASES, WIRES: 3 φ 4 W				AIC RATING (A): 10000							
MINIMUM BUS CAPACITY (A): 200A				NOTES: ASSUMED PHASE C IS THE HIGH LEG							
MAIN O.C. DEVICE (A): 200A MB											
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (AMP)				POLE	TRIP AMPS	DESCRIPTION	CKT NO
				A	B	C					
1	EXISTING PUMP CONTROL PANEL	EXISTING	3	154.0	10.0	154.0	10.0	1	20	GENERATOR BATTERY CHARGER	2
3								1	20	GENERATOR BLOCK HEATER	4
5						154.0	0.0	1		SPACE	6
7	SPACE		1	0.0	5.0			1	20	EXISTING LIGHTS	8
9	SPACE		1			0.0	10.0	1	20	EXISTING CONTROLS	10
11	SPACE		1				0.0	0.0	1	SPACE	12
13	SPACE		1	0.0	10.0			1	20	EXISTING EXHAUST FAN	14
15	SPACE		1			0.0	0.0	1		SPACE	16
17	SPACE		1				0.0	0.0	1	SPACE	18
19	SPACE		1	0.0	0.0			1		SPACE	20
21	SPACE		1			0.0	0.0	1		SPACE	22
23	SPACE		1				0.0	0.0	1	SPACE	24
25	SPACE		1	0.0	0.0			1		SPACE	26
27	SPACE		1			0.0	0.0	1		SPACE	28
29	SPACE		1				0.0	0.0	1	SPACE	30
31	SPACE		1	0.0	0.0			1		SPACE	32
33	SPACE		1			0.0	0.0	1		SPACE	34
35	SPACE		1				0.0	0.0	1	SPACE	36
37	SPACE		1	0.0	0.0			1		SPACE	38
39	SPACE		1			0.0	0.0	1		SPACE	40
41	SPACE		1				0.0	0.0	1	SPACE	42
				CONNECTED LOAD PHASE TOTALS (AMP)							
				179.0	174.0	154.0					

USE 2/C #12 & 1/C #12GND IN 3/4" FOR 20A CB  
 USE 2/C #10 & 1/C #10GND IN 1" FOR 30A CB  
 SEE CABLE SCHEDULE FOR CABLE/CONDUIT SIZES IF FEEDER BREAKER SIZE IS GREATER THAN 30A

1 GLENN ADDY PUMP STATION ONE LINE DIAGRAM

**GLENN ADDY PUMP STATION ONE LINE DIAGRAM**

REVISIONS:

A INITIAL RELEASE	10/16/15
B REVISED	12/17/15
C ADDENDUM 2	03/28/16

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SCALE:	AS SHOWN
DWG. NAME:	E-4
PROJ. NO.:	S9100.004
DATE:	DECEMBER 2015
SHEET NO.:	E-4
	OF 6 SHEETS

REVISIONS:	
A INITIAL RELEASE	10/16/15
B REVISED	12/17/15
C ADDENDUM 2	03/28/16

FOR THE  
**CITY OF STOCKBRIDGE**  
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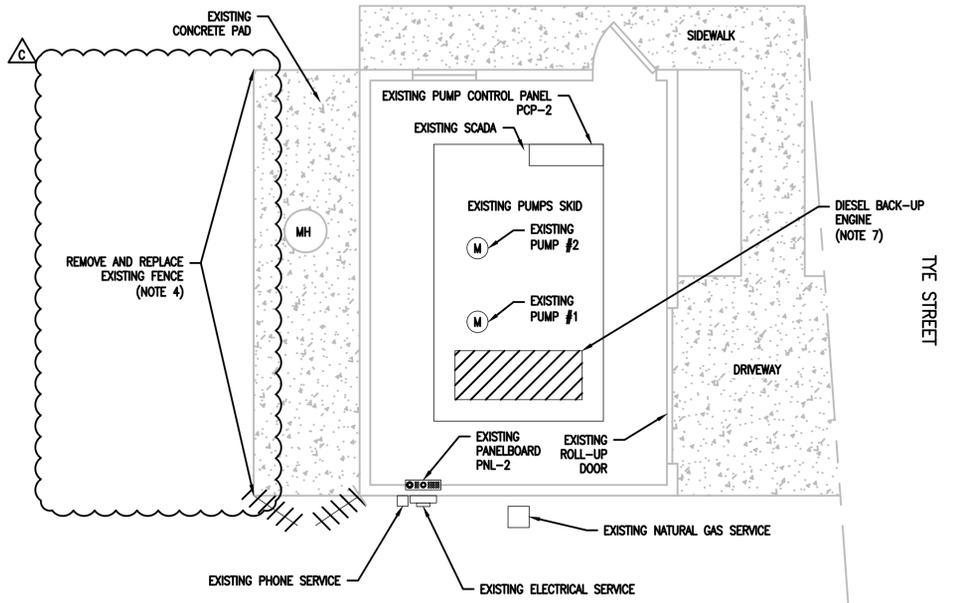
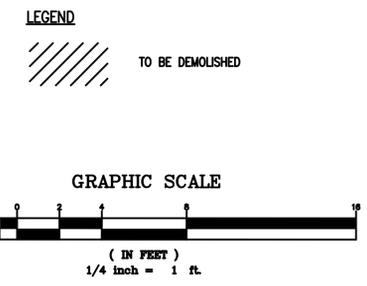
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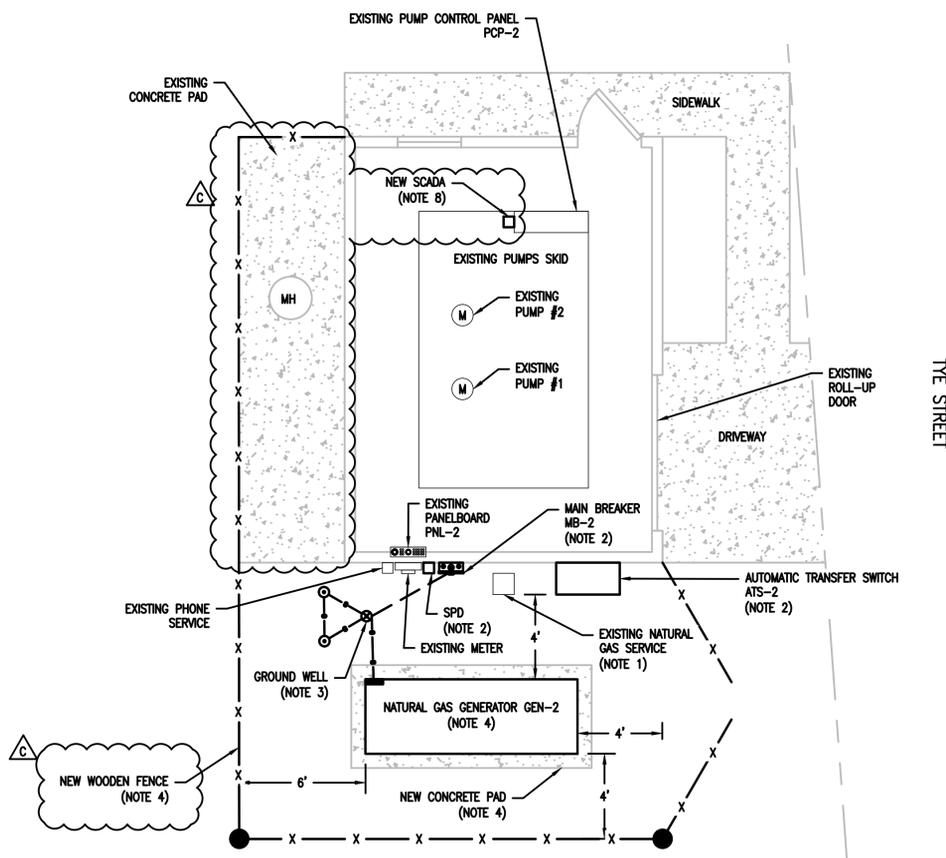
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SCALE:	AS SHOWN
DWG. NAME:	E-5
PROJ. NO.:	S9100.004
DATE:	DECEMBER 2015
SHEET NO.:	E-5
OF 6 SHEETS	

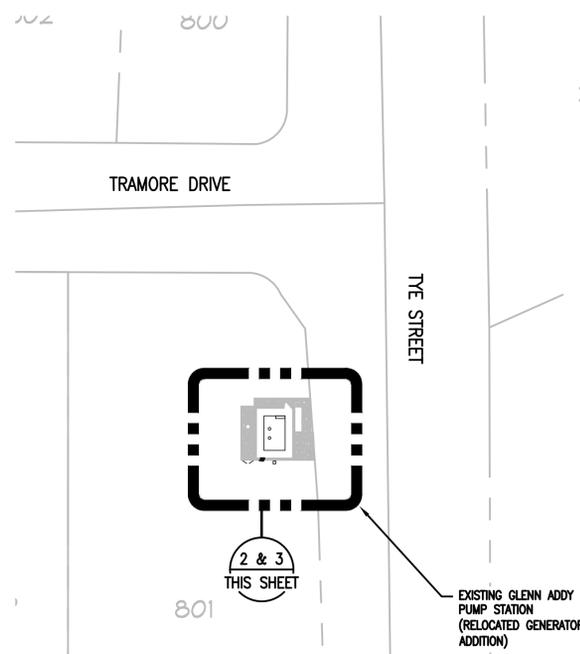
- NOTES:**
- CONTRACTOR SHALL REMARK EXISTING NATURAL GAS SERVICE TO SUPPLY THE RELOCATED NATURAL GAS GENERATOR SET. CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH INSTALLING AND UPGRADING NATURAL GAS SUPPLY TO THE RELOCATED GENERATOR.
  - CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION FOR MAIN BREAKER (MB-2), SURGE PROTECTION DEVICE (SPD), AND AUTOMATIC TRANSFER SWITCH (ATS-1) AS REQUIRED FOR MINIMUM WORKING CLEARANCES. SURFACE MOUNT THE OUTSIDE ELECTRICAL EQUIPMENT AT THE SAME HEIGHT AS THE EXISTING METER. USE UNI-STRUT SUPPORT AND ANY REQUIRED HARDWARE FOR WALL MOUNTED SUPPORT.
  - SEE DETAIL A ON DWG. E-6 FOR GROUND WELL INSTALLATION DETAILS.
  - CONTRACTOR SHALL RELOCATE THE EXISTING GENERATOR SET FROM WILLOW SPRINGS PUMP STATION AND INSTALL AT THE LOCATION SHOWN. CONTRACTOR IS RESPONSIBLE TO PROVIDE ADEQUATE WORKING CLEARANCES AROUND THE GENERATOR. SEE PAD AND GROUNDING DETAIL FOR GENERATOR ON DWG. E-6, DETAIL "E" TO ACCOMMODATE THE RELOCATED GENERATOR SET. CONTRACTOR SHALL CLEAN AND PREPARE SURFACE OF EXISTING METAL GENERATOR HOUSING, PRIME AND RE-PAIN IN ACCORDANCE TO SECTIONS 0885 AND 0900. SURFACES SHALL BE FREE OF DUST, OIL, RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIAL BEFORE PRIMING. CONTRACTOR SHALL FURNISH AND INSTALL NEW WOODEN FENCE AND GATES PER THE DETAIL SHOWN ON SHEET 9. CONTRACTOR SHALL ALLOW ACCESS TO THE GENERATOR, PROVIDE A MINIMUM OF 4' WORKING CLEARANCES AROUND THE ENTIRE GENERATOR.
  - CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED CONDUITS AS SHOWN ON ONE LINE DIAGRAM. CONTRACTOR IS RESPONSIBLE FOR ROUTING CONDUITS AND CABLES IN ORDER TO AVOID ANY INTERFERENCES WITH EXISTING EQUIPMENT. CONTRACTOR SHALL PROVIDE CONDUIT SUPPORTS AS REQUIRED FOR PROPER MOUNTING OF CONDUITS ALONG WALL AND ABOVE ELECTRICAL EQUIPMENT.
  - SEE DETAIL "B" ON DWG. E-6 FOR DUCT BANK INSTALLATION DETAILS.
  - CONTRACTOR SHALL DEMOLISH DIESEL BACK-UP ENGINE AND ALL ASSOCIATED DEVICES FOR EXISTING 30HP PUMP ONCE THE RELOCATED WILLOW SPRINGS STAND-BY GENERATOR IS INSTALLED AND TESTED. CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH REMOVING THE DIESEL ENGINE AND MODIFYING THE EXISTING PUMP. CONTRACTOR SHALL RETURN THE DIESEL BACK-UP ENGINE TO OWNER FOR DISPOSITION.
  - CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING AUTODIALER AND RETURN TO OWNER. ALL THE EXISTING POINTS FROM THE AUTODIALER SHALL BE RECONNECTED TO THE NEW SCADA PANEL. EXTEND EXISTING CABLES AND CONDUITS AS REQUIRED. CONTRACTOR SHALL FURNISH AND INSTALL A CELLULAR BASED SCADA PANEL AND ALL THE REQUIRED ACCESSORIES IN THE PLACE OF THE EXISTING AUTODIALER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TYPES OF CELLULAR SERVICE AVAILABLE IN THE AREA AND SELECT THE APPROPRIATE CELLULAR TRANSCIVER WHICH WILL PROVIDE THE MOST RELIABLE CONNECTION. THE SCADA SYSTEM COMPONENTS SHALL BE PROVIDED BY MISSION CONTROLS.
- THE FOLLOWING INPUTS SHALL BE INCLUDED IN ADDITION TO THE EXISTING ALARMS:
- GENERATOR RUNNING (DI) (NEW)
  - GENERATOR FAULT (DI) (NEW)
  - PUMP 1 RUNNING (DI) (NEW)
  - PUMP 2 RUNNING (DI) (NEW)
  - PUMPS COMMON FAULT (DI) (NEW)
  - HIGH LEVEL (DI) (EXISTING)
  - LOW LEVEL (DI) (EXISTING)
  - POWER LOSS (DI) (EXISTING)
- IN ADDITION, CONTRACTOR SHALL INCLUDE SYSTEM INTEGRATION WORK TO INCLUDE LINKING AND DEPICTING GLENN ADDY AND WILLOW SPRINGS PUMP STATIONS HMI SCREENS AT THE PLANT SCADA SYSTEM.



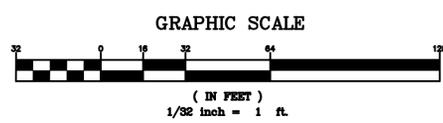
**2 EXISTING PUMP STATION ELECTRICAL DEMOLITION PLAN**  
SCALE: 1/4" = 1'-0"



**3 PROPOSED PUMP STATION ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"



**1 LOCATION PLAN**  
SCALE: 1/32" = 1'-0"



GLENN ADDY PUMP STATION ELECTRICAL SITE PLANS



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